DESIGN AND IMPLEMENTATION OF PROJECT MANAGEMENT REPOSITORY SYSTEM (CASE STUDY OF COMPUTER SCIENCE, AUCHI POLYTECHNIC)

BY

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CERTIFICATION

We, the undersigned, certify that this project work was carried out by **Nmalagu Livingstone Chinedu** with mat no **ICT/2252070327** of the Department of Computer Science.

We also certify that the work is adequate in scope and quality in partial fulfillment of the requirements for the award of Higher National Diploma (HND) in Computer Science.

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DEDICATION

This project is dedicated to Almighty God.

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I wish to express my profound gratitude to Almighty God the sustainer and creator of the universe for granting me good health and success throughout my stay in school.

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ABSTRACT

The web-based undergraduate project repository for the Computer Science Department of Federal Polytechnic, Auchi intends to eliminate the restrictions to timely and efficient access to undergraduate project information. To design and implement the project, we used the Model View Controller (MVC) application design which comprised of three interconnected parts: The model (data), the view (user interface), and the controller (processes that handle input). The results of the new system showed a 100 percent increase in time taken to search for one undergraduate project, security of projects from unfortunate water and fire disaster, minimization of official procedures in accessing project information and time taken to archive one undergraduate project. Also, project information can be accessed anytime when online. This implies there is no time bound to when to return metadata for undergraduate project work, leading to low or no restrictions to timely and efficient access to project information.. The front end and backend were developed using html, CSS, Php languages and MYSQL, respectively.

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CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Colleges, Polytechnics, Universities or any Educational Institutes conduct projects for the better understanding of the practical approach towards the subject in the real world which involves a lot of tasks like abstract or synopsis evaluation, thesis correction and updating the proposed module with assigned supervisors. In many tertiary institutions in the country, students seek a project in a given field of specialty as part of the upper level of their educational program. Usually, a project can be filled by at most one student, though in some cases a project is suitable for more than one student to work on simultaneously (Stanley, 2016).

To give students something of a choice, there should be as wide a range of available projects as possible, and in any case the total number of project places should not be less than the total number of students. Typically, a lecturer will also order a number of projects but does not necessarily expect that all will be taken up by students. Each student has preferences over the available projects that they find acceptable, whilst a lecturer will normally have preferences over the students that he or she is willing to supervise. There may also be upper bounds on the number of students that can be assigned to a particular project, and the number of students that a given lecturer is willing to supervise.

With the advancement in file saving and file retrieval system, an institution cannot afford to be ignorant of the basic tool, which is the driving force behind technological oriented administration. A lot can be achieved if an institution should have a well-organized management system. Students project can easily be allocated to each or group of students without the problem of delayed project allocation from the supervisor or conflict of topic between two individuals or group of students in the same department. Students update can be easily accessed if the database system is enhanced. This project considers the ways of

allocating student project in the tertiary institution using Auchi Polytechnic computer science department as a case study.

1.2 Statement of the Problem

Projects already submitted to the department of computer science cannot be accessed anywhere and at anytime without having to come to the school building and reaching the office in charge. In case of fire incidence or water, the copies of the projects curated by the department could be damaged or totally lost. Searching of projects is very hectic and slow due to the quantity of projects and limited human effort. Also, access to projects can be delayed due to the official procedures and protocols involved in the process. Therefore, this work is to develop a repository to solve this problem.

1.3 Aim and Objectives of the Study

The purpose of this study is to design and implement student project management repository system for Computer Science department, Auchi Polytechnic, Auchi. This will be achieved by the following objectives:

1. To design a web-based repository for Computer Science Department, Auchi Polytechnic, Auchi.
2. To implement the design in (i) using PHP
3. To evaluate the proposed system in (i).

1.4 Significance of the Study

A key function of this research is that the computer science repository provides a unique storage identifier for every object, therefore making it feasible with the aid of the search module incorporation into the web-based repository application to efficiently search, discover and retrieve objects (projects) from its database**.** Both staff and student will benefit from this feature in that one can easily search for a project by the project name, student name

or year. The office in charge of keeping and handling students projects will now have better support for storage of graduates' projects and easy retrieval on request.

The computer science repository could also serve as an educational environment for many internet users and researchers. It will encourage researchers to take up further research on a subject matter (like a project) and thereby add to the body of knowledge. This repository also covers authors of the projects and because it clearly attributes the student name (author) to its content.

1.5 Scope of Study

The research centers on the Design and Implementation of Student Project Management Repository System, a case study of Auchi Polytechnic, Computer Science Department.

1.6 Limitation of the Study

1. **Financial Constraints:** Bearing in mind the economic state of the nation, it was found difficult in making both ends meet, because of the exorbitant nature of things nowadays in travelling for the collection of data needed for the project.
2. **Time Constraints:** Looking at the interval between the resumption and vacation of the final semester for the project to be completed, the time given seemed to be short for the collection of required information for better work to be done.

1.7 Definition of Terms

Algorithm: This is a detailed set of step by step instruction for solving a given problem.

Computer: Any electronic machine that can be programmed to carry out a finite set of instructions. Such instructions could be arithmetic or logical operations.

Computerization: It involves carrying out a set of task with the aim of managing and controlling library operation using computer resources e.g. to store information in a computer system.

Control: Control involves monitoring and evaluating feedback to determine whether a system is moving towards the achievement of goals.

Conversion: This is the process of changing from an old or existing system to a new system.

CPU: The Central Processing Unit (CPU) is the part of a computer that performs operations and executes software commands.

Data: This is a raw fact that can be processed by any computing machine.

Database: This is a systematically arranged collection of computer data, structured so that it can be automatically retrieved or manipulated.

Form: A form is said to be a template that is used to give a distinctive attribute/character considered apart from its content, colour, texture or composition.

Flowchart: This is a pictorial representation of an algorithm.

Hardware: Hardware is a physical component of a computer system which includes; Keyboard, Mouse, Printers etc.

Input: This simply means data entered into a computer for processing.

Information: This simply means data that has been processed into a meaningful detail.

Identifier: An identifier is simply a unique identity attached to one object, it aids referencing such object directly when its identifier is requested. An identifier can be a serial number, identity number (also written as 'ID') or an index number.

Output: output is anything that is produced by the computer to the user in form of text, sound, picture etc.

Project: This is a planned set of interrelated tasks to be executed over a fixed period and within certain cost and other limitations to accomplish an objective or goals.

Project management: The discipline of carefully projecting or planning, organizing, monitoring, and controlling resources to achieve project goals under specific success criteria.

Repository: A repository is an archive, storehouse or container that allows storage, cataloging, accessing and viewing each object's content.

Software: Software is a generic term used to describe a set of instruction called program which is used to direct all the activities of the computer.

System: System can be defined as a collection of interconnected components which work together to achieve a set of goals or objectives.

CHAPTER TWO

LITERATURE REVIEW

2.1 Student Project

A student project is a work that a student creates as part of a tertiary/high school, undergraduate, or graduate school program. Student project are long academic documents that students write after they research a particular subject in depth. Therefore, student project are usually assigned once per course, per semester, or only once as part of an academic program. (David, 2010).

There are many different ways in which a lecturer or academic program will use student project assignments. Therefore, students may have to write project for different reasons, depending on their level of study and academic institution. For example, (Dye, 2009) "a secondary school student may have to write a year-end student project as part of an overall high school program. Usually, the project will be graded by a supervisor, but all students in a particular grade might have to work on a project in order to pass a grade. A junior project is a good example of this sort of assignment".

An undergraduate student project might be a large assignment that a student has to create as part of an academic course. In such a case, the undergraduate student project might be similar to a term paper. For an undergraduate student project, the student should research a particular subject in depth in order to create the paper. This paper would usually account for the majority of a semester grade. A student may also have to create a project for each course that he or she is taking.

A graduate student project has its own definition and set of requirements. In most cases, a graduate project is, according to Paul R, (2008), "one paper that a student works on for a large portion of the graduate program, especially in his or her final months of the program. This project requires a huge amount of research and may even be ground-breaking

for a particular industry". Students will then have to defend their student project in front of a panel of judges that are familiar with the subject matter in the project. These panel members may ask the student questions related to his or her research or to the project itself. This sort of graduate project is also often called a graduate school dissertation.

While there are many definitions and uses for student project, the basic writing elements are the same. Therefore, students should always research a particular subject and write the academic document with an introduction, body, conclusion, resources, and appendices. (Anwar, 2014).

2.2 Responsibilities of the Supervisor

According to Augustsson (2012), the supervisor(s) shall monitor, support and direct the student's work and progress soon after the allocation of project/dissertation titles. The responsibilities of the supervisor include:

1. Proposing/supervising projects/dissertations in their own subject area.
2. Setting a framework for regularly scheduled progress meetings between supervisor(s) and student.
3. Providing advice on issues of plagiarism, in line with the polytechnic's regulations.
4. Briefing the students and apprising them of the regulations pertaining to the final year projects/dissertations.
5. Giving frequent feedback/comments on progress achieved by the student.
6. Giving guidance on the approach for the appropriate analysis of data obtained, interpretation and presentation of results (if applicable).
7. Assisting in the identification of a research methodology, planning and execution of the research project (if applicable).
8. Giving guidance about the formulation of an appropriate hypothesis-driven research project and focusing on the objectives of the research (if applicable).

2.3 Responsibilities of the Student

Throughout project/dissertation work, the students are to seek advice, comments and guidance from his/her supervisor(s) on the nature of the project/dissertation work and standard expected. Students are also advised to keep a notebook for the purpose of the meeting with the supervisor(s) while the supervisor(s) may wish to keep a brief record of each meeting held.

Augustsson (2012) highlighted the responsibilities of the student to include:

1. Responding to the supervisor's suggestions and/or criticisms on his/her work and progress; Following all laboratory safety guidelines (if applicable).
2. Bringing to the attention of the supervisor(s) any problems (academic and personal) associated with progress.
3. Discussing the layout of the final dissertation with the supervisor(s) prior to the writing-up stage.
4. Arranging with his/her supervisor(s) mutually agreed convenient times to discuss progress achieved (in the event that meetings are not possible, e-mails or other forms of communication may be used).

Despite all efforts, many supervisory issues appear at any stage of the project lifecycle. For instance, the supervisor may face challenges to help his students controlling and conducting their research or projects independently with minimum assistance and interference. In other circumstances, supervisors find difficulty in building the students' autonomy, reflection, motivation, and self-initiative to control their projects. The project module provides the students the opportunity to design, undertake or conduct an independent piece of research or study related to their program of studies under the guidance of a supervisor, who is normally a member of the academic staff (full-time or part-time). Other

qualified supervisors may also be appointed subject to approval by the Head of Department and Dean of Faculty.

2.4 Types of Project in the Academic Field

i. **Reading/Writing Projects:** Students read, comprehend and interpret specific books, novels, plays, poems, etc., often around themes. Sometimes books are assigned, while at other times students select their own books. Through reading/writing projects, students demonstrate comprehension, understanding, and ability to interpret the text. Reading/writing projects often include class discussions around dilemmas inherent in the reading and/or writing general reactions, interpretive essays, poems, stories and plays based on the material read.

Examples: A lecturer develops a monthly project around a different literary genre. Each month the teacher selects a different type of literature, such as biography, fiction, or mystery. Students choose a book and an author that approved by the teacher. They then discuss the key features of the studied genre (e.g. what makes for a good biography?), write a summary that demonstrates their understanding of the key ideas in the book they read, and write their general reaction to the book. They complete a drawing depicting a critical idea in the book, and also write a new ending to the book. The book and the developed material are shared among the entire class at the end of each month. Other examples of reading-writing projects are when students select and read biographies of famous people, find, read and report on books about heroes, read and discuss short stories describing a particular period in history, or read and put on the plays of a single author. Another format for this type of project is through the selection and analysis of genres of artwork or music.

ii. **Information-Data Organizing Projects:** The goal of information-data organizing projects is for lecturers to have students collect, sort and summarize information and data around a topic, question, theme or unit from multiple sources, such as textbooks, fiction, and non-fiction texts. Students might synthesize articles and other readings around a topic of interest, analyze surveys and interviews designed to explore key questions or find ways to put information into a variety of formats, including graphs and charts. Sometimes information is represented in other formats, such as through artwork, crafts, and music. Information-data-organizing project approaches are useful when students are studying a particular topic or question since this type of project helps students learn how to use multiple resources instead of solely using a textbook. ***Examples:*** Typical information-data organizing projects include classifying information from textbooks and other resources into charts and graphs, conducting a survey and summarizing the data, or developing decision-making trees from multiple resources. For example, students study how technology is used around the world. They find and read articles, collect data, and develop charts and graphs to illustrate and share how technology is used in different countries.

iii. ***Major Investigation Projects:*** Major investigation projects enable students to create their own questions around a topic, collect, organize, and evaluate information, draw conclusions and share results through presentations and explanations. Students may demonstrate the results of their investigations through different types of products and experiences, including the writing of a paper, the development of artwork, oral presentations, audio and videotape productions, photographic essays, simulations, or plays. Sometimes students select their own topics for research projects based on their interests, while at other times research

projects are focused around specific academic topics being studied in class. In some senior project formats, students are free to select any topic of interest for an investigation project. Scientific experiments are a sub-category of investigative research projects, in which students create questions around a scientific concern or issue, develop hypotheses, conduct design experiments, test a hypothesis, and formulate results. While major investigation projects are often considered long-term activities, some investigation projects can be conducted over relatively short periods of time when adequate amounts of time are devoted to them each day. **Examples*:*** Typical investigative research projects ask students to pick a topic related to the class subject, such as a topic of interest around American history. Students then are able to do research around their topic, find, read and summarize information and data, draw conclusions, write papers, present and share results. Conducting scientific research experiments are also common science classroom activities. Other research projects may be built around student interests. Students select a topic of interest, develop a set of questions that help them to explore a topic and narrow the topic down to something manageable, find, read and summarize information and data, contact outside resources to help learn more about the topic, draw conclusions, and make a presentation. Some investigative projects are conducted over several days before holidays or at the end of the school year.

iv. **Design Projects***:* Students invent products and objects, design technology, or design artwork or models, for example, students might be asked to use scientific principles to design an object that will descend from a specific height at the slowest speed, to design artwork using artistic principles, or to design a house using the latest technological software. ***Example:*** Sixth-grade students research

and design a dream house, including floor plans, a description of the interior of the houses, materials to be used to build the house. Students also create a model of their homes and a cost analysis for the interior of at least one room in the house. Students also are required to make a presentation summarizing the results of their work.

v. **Problem Solving/Decision Making Projects:** Students solve problems and make decisions by being given or creating specific situations and complex problems. Problem situations around topics such as pollution, world events, health care, poverty, and economic issues are interesting and exciting areas of study and provide students with opportunities to learn about current and future complex issues and problems and to use creative problem-solving processes. Complex mathematical problems are another source of problem-solving projects. Decision-making projects through simulations of both historical and present-day decisions are worthwhile projects. ***Examples:*** Students are asked to select a global problem, such as lack of food, water issues, energy problems, or medical issues. They then are asked to problem solve and come up with some models or examples of a potential solution to the problem. Young children are asked to develop a set of classroom rules to live by.

vi. **"Argumentation" projects:** After considerable research and discussion about an issue or dilemma, students write a persuasive essay or position paper giving their point of view, reasons, and evidence to support this point of view. Some argumentation projects are built around debates or simulations. ***Examples:*** Students research information on both sides of an issue with societal impact (the issue might be current or historical). Each student then develops a coherent argument on one side or the other, and then gives a demonstration, using any

format (oral, written media presentation) to forecast the positive and negative consequences for society of their position. After studying the development of the Constitution, students simulate a Constitutional Convention. They take on the roles of different representatives to the Convention, argue for their State's position, and develop their own version of the Constitution.

vii. **Real World, Authentic Projects:** These provide students with the opportunity of conducting projects with direct links and potential payoffs either to themselves or to the outside world. Projects which lead to personal improvement, community involvement, and service, multicultural explorations in real-world settings, an understanding of careers and career options, cooperative work experience, internships, and a focus on health issues produce direct payoffs for students in a changing world. ***Examples:*** In health class, students design a plan for healthful living and physical fitness. They create a plan for a living style that will provide them with health and physical well-being. They need to include a model healthful weekly menu tailored to their needs and tastes and discuss why it is healthful. They also develop a realistic weekly exercise plan to follow. Students are asked to find an organization or agency that provides a service to others and is of interest to them. They volunteer their time and keep a log of hours spent and a journal reflecting on their experiences. Where possible, they are asked to provide leadership in some capacity to the organization. They share their experience with other classmates.

2.5 Related Works

A system called Project List was proposed by Loughborough University, UK. This system was intended to first manage easily a large list of dissertation projects, allocate them to students with minimum overhead by avoiding as much as possible manual solutions that frequently involve multiple documents and spreadsheets, flurries of emails, and lots of fiddly details to keep track of. It also aimed at simplifying the supervision process and bring everything together in a single place by easing remote accessibility to academics and students at any time or place.

The Case Study of an Online Assignment Submission at UOM by Ramnarain (2012) explained how the assignments given to the students can be managed online. The system also showed the graph of the feedback given to that system that how friendly it proved by the students as well as the teachers.

The article titled "Web Based Student Information Management System" by Bharamagoudar (2013) describes that how the maintenance of the record of the students' information can be done easily at one place thus giving an idea about maintaining all of the project related tasks at one single page. Also, it tells about maintaining the progress report of the students based on their work performance.

A Multi-Objective Approach for the Project Allocation Problem by Pudaruth, (2013) describes that the system performs allocation of the project as well as allows academics to rate the projects. The project captured the preferences of examiners as well as students and allocates projects to them in order to maximize the number of students who get their first choice in their preference list.

In research colleges, IRs are predicated on contributions by their stakeholders that embrace each educational and non-academic staff; those concerned in teaching and research; and each postgraduate and college man students. Every of those teams contains potential

authors and readers of the materials in IR, and also the contributions of authors are crucial to the success of an IR. Basically whether or not or not agency become a section of the intelligent structure rests on the extent of the academia's community contribution (Abrizah, 2009).

Abrizah (2009), also stated that for an IR to be managed properly there is need for some certain steps to be carried out to aid the person or persons in charge (librarian) in order to maintain it. He stated the following steps:

i. Understanding the IR software used.
ii. Publicity and advocacy of IR.
iii. Establishing an institutional mandate
iv. Educating faculty regarding self-archiving issues
v. Submission review for content and metadata.
vi. Training of authors.

Abrizah's research was concerned with the activities and attitudes of an IR stakeholder – the academicians – with respect to OA publishing in IRs, and understanding the role of the academic library in providing this research infrastructure. The objectives of his study was to investigate:

a) The issues in establishing a facility to provide OA to research materials such as level of knowledge, participation, partnership, ownership and management.
b) The potential of an IR and the requirements of a good digital repository in allowing faculties to cooperatively develop and upload the resources to the IR.

Abrizah's research methodology was through e-mail invitation to participate in a survey, sent out internally to all academics (around 800 of them) within the university. He termed this approach as "*the randomly-selected population*". The e-mail, which contained a

hypertext link, enables the participants to link to the survey database hosted by SurveyPro. The survey instrument consisted of 6 sections:

a) Awareness and knowledge of IR as well as current IR contribution.

b) Usefulness and importance of IR.

c) Self-archiving experience.

d) Future IR contribution.

e) Concerns for contribution.

f) Demographics.

If surveyed faculty members indicate that they have awareness of the IR, plan to contribute to the IR in the future, and do other self-archiving practices, they are administered every section of the questionnaire. Otherwise, they will skip one or more sections depending on their awareness and experience of self-archiving. Abrizah's findings suggest that over one third of the faculty respondents are unaware of OA and IR, or are aware of its existence but remain detached from it. However, faculty's attitudes to the open access movement and IRs are generally positive – the majority acknowledges the importance of an IR and like the idea of making their intellectual output available through the university's IR. Faculties who have had experience in self-archiving want OA at both ends of the chain: as authors and as readers.

It can be noted that Abrizah (2009) has out rightly stated the activities and attitudes of an IR stakeholder and channeled these activities in respect to OA publishing in IRs. But still, his research methodology lacked average response from participators (survey participants); also, his research only addressed the second objective shallowly; and then, his research did not out rightly state recommendations for future research and improvements.

"Numerous repository partners (for instance, custodians) are on the cutting edges as contacts with staff and understudies, and they should have the capacity to fathom and ability to present the reasons why issues, for example, open access, creator rights, copyright, the

difficulties of the current financial model in academic distributed, and institutional repositories, to give some examples, are critical and deserving of notification. Having only one individual as the expert on these issues in the library (in the event that you have one) is not generally the best comparison for achievement. An instructive activity inside of the library, in the first place, for curators and library staff on the theme and issues identified with academic correspondence is a foundational key to achievement" (Bull and Eden, 2014).

Bull and Eden (2014) further contended that while the subject of insightful correspondence is essential and speaks to a plan (item in an agenda) for some scholastic libraries, the main problems are the way to do it, what to center upon, and how to be effective.

Preparing and actualizing insightful correspondence activities into library administrations has been to a great extent attached to the advancement of institutional repositories. Ahead of schedule in IR improvement, the planned extent of the task immediately transformed from a staff grant self-chronicling administration to something else, something more. For example, IRs could likewise be distributed stages and interminable access focuses for different types of dark writing, for example, gathering procedures, article pre-prints, scholastic notices, and a great deal more. The extent of numerous IRs has consistently changed, and, subsequently, insightful correspondence administrations have been in a steady condition of flux also. Numerous establishments, especially littler ones, began academic correspondence preparing in conjunction with IR preparing - and maybe confused the two. Nonetheless, a few foundations have exploited this need to incorporate most library units and reframed IR administrations as a major aspect of a bigger insightful correspondence activity. (Bull and Eden, 2014).

Bull and Eden (2014) also stressed that implementing a scholarly communication initiative needs to be deliberate, thoughtful, and a team exercise.

During the design, implementation, and training phase of the IR, Bull and Eden (2014) identified several challenges likely to be faced after the IR was operational, including:

a) *Lack of downloads and other web traffic* – Many IRs fail to generate the necessary usage and traffic to warrant continuing long-term support and resources.
b) *Limited library faculty/staff resources and time commitment* – As is the case many times, we were concerned about the amount of faculty and staff time and expertise available for the project.
c) *Limited content to recruit* – As a small, comprehensive university with a focus on teaching, we were concerned that there might be only a finite amount of potential content available for posting.
d) *Lack of faculty voluntary involvement and scholarship deposits* – As much of the literature has suggested, we were concerned that faculty would not deposit their work voluntarily or routinely.

Bull and Eden (2014) inferred that numerous littler establishments may be reluctant to embrace an academic correspondence activity, including IR advancement, in light of concerns identifying with absence of aptitude, personnel intrigue and substance to enlist, or download checks or page hits. With an emphasis on workforce and staff preparing for insightful correspondence issues, an IR stage to showcase and safeguard your organization's academic yield, and an adaptable effort arrange for that puts your partners' requirements above most past thoughts of undertaking degree, numerous colleges and schools could execute fruitful insightful correspondence administrations at their individual establishments. The whole establishment can profit by an effective academic correspondence activity, which would further illuminate specialists of developing insightful dispersal patterns, instruments, and financing opportunities. While every foundation is distinctive and its scientists have

changing requirements for backing, a conceivable administration may be to begin recognizing those needs one-by-one, project by-task.

“One of the focal objectives of the college is the formation of information through the acts of educating, exploration, and grant. On the other hand, we don't make information for its own particular purpose. We create information with the goal that it might be granted - to our understudies, to our associates, to the institute, and to society - thus that it may usefully affect our general surroundings. We can't teach in a vacuum. The scattering of information is then intelligently additionally one of the college's essential capacities” (English, 2010).

English (2010) further expresses that computerized innovations and systems have altered the transmission of data and learning in each range of cutting edge life. They have additionally offered ascend to new, quickly multiplying types of correspondence and substance - frames which have rightly been grasped by researchers and colleges as they endeavor to convey all the more viably and interface with new groups of onlookers.

English (2010) obviously sketched out that his examination undertaking won't just envelop the formation of an equipment and software-based framework to perform the ordinary assignments of ingestion, stockpiling, indexing, seeking, and conveyance of computerized substance, however may likewise in the long run include:

A. The creation of a library outreach program aimed at faculty, researchers, and students to:
    a. Identify and digitize non-born-digital research and academic output.
    b. Advise and educate researchers about copyright issues and content licensing with respect to open access, digital repositories, and the traditional publication process.
    c. Assist with content submission and metadata creation for items deposited with the repository.
B. The development of a digital space where the faculty, researchers, and students can:

a. Create a permanent online profile for their scholarly work and get information on how their works are being used.
b. Create notifications when new work has been published.
c. Access tools to aid in collaborative work and preparation for publication.

English (2010) further stated that the repository will seek to collect a broad spectrum of content, including *research materials* such as journal articles (either final versions or pre-prints), conference papers, gray literature, working papers, technical reports, presentations, dissertations, and theses; *academic materials* including syllabi, slides, recorded lectures, exams, and handouts; and digitized *primary source materials* such as photographs, images, rare books, archival documents, presentations, and other events.

Challenges to a successful repository implementation abound. The implementation and ongoing maintenance and collection development activities require a significant investment of time, staff, funds, and technological resources; acquiring a critical mass of content can be difficult, given that faculty and administrators may not immediately perceive the benefits of submitting material to a repository; thorny copyright and intellectual property issues must be successfully navigated; acquired content may require substantial processing in order to prepare it for inclusion in the collection; and the health and long-term viability of digital information must be carefully monitored, also, managing the responsibilities, needs, and expectations of such a wide array of stakeholders is very tasking (English, 2010).

The concept of IR suggests the tantalizing possibility of greater library influence over the full cycle of scholarly communication on campus from research through publication, collection and preservation. Libraries are performing lead role in shaping institutional digital repositories all over the world (Thorat and Pakil, 2013).

Thorat and Pakil (2013) stated that the building of a digital repository is necessary in the present scenario of the digital world because of the following changes:

A. Significant increase in the overall volume of research.
B. Increasing need of archival materials and access to unpublished information bearing objects.
C. Increasing demand to access knowledge objects from anywhere at any time.
D. Increase uncertainty over who will handle the preservation archiving of digital scholarly research materials.

Thorat and Pakil (2013) also stated (in summary) the importance for a standard IR; as follows:

A. It will help to develop a national research repository infrastructure by setting up, populating and linking individual repositories.
B. It will stimulate development of services that draw on research information made available through the repository infrastructure.
C. It will provide a window that gives OA to improve the sponsoring institution's visibility and status.
D. It will support the OA model of publication.

Thorat and Pakil (2013) also suggested that a forum to be available on web which will assist in receiving valuable suggestions and changes in the IR. The same will also assist to offer outstanding services and best quality of an IR.

The internet has removed many of the restrictions traditionally associated with access to knowledge, including geographical barriers, time restrictions and delays in dissemination, and availability barriers that limited the range of sources that could be accessed by a single person (Rhaman and Mezbah-ul-Islam, 2014).

Rhaman and Mezbah-ul-lslam's (2014) research was centered on identifying the various institutional repository (IR) initiatives taken by Bangladeshi institutions, including identifying prospects, exploring strategies, and framing guideline for building IRs in

Bangladesh. Their research methodology took a general review approach and used the counts of the development of IR practices in Bangladesh. Other secondary sources, such as research reports, articles and internet, are used. Discussions were also held with staff members of some other libraries, who intended to establish IR in their respective institutions. Data were collected from different institutions, currently practicing IRs in Bangladesh, through personal visit and website. The findings of their research were; the existing status of practicing IRs in Bangladesh and identification of the trends at national and global level of IRs. Results showed that some institutions established their repositories in Bangladesh using *DSpace*, others used *Greenstone* and *EPrints.*

2.4 Summary of Review

The advent of the internet and other digital reproduction and communication technologies indicates that people are now able to access information far more easily than ever before (Rhaman and Mezbah-ul-lslam, 2014), the growth of IRs have change the orientation of institutional scholarly output archiving and sharing worldwide, most institutions (especially universities) now own and maintain their IR, which may be OA or restricted based on their rules and principles in distributing scholarly content. This review has showed that OA repositories attain more success in their purpose (that is, in the traffic they accrue, the number of downloads and the number of researchers that submit their publications or works). Since from the inception of the first IR, IRs have kept on growing larger and building more educational content for further research and study, although few to none repositories are the same as the department of computer science repository. The department of computer science repository only collects scholarly output from a particular department and of particular type (that is projects of students from computer science department) only. The repository also offers searching functionality, all other repositories reviewed contain materials of different types (like books, articles and images), but computer science repository

seeks to fill the gap to contain materials within the scope of undergraduate projects only, content stored in this repository are of same or share a parent format.

IRs are crucial for authors whose work may not fit within the scope of any one scholarly journal. They are also vital for researchers with data that lies outside the parameters of disciplinary data repositories, for dissertation authors who want to make supplemental materials available, and for undergraduates (Williams, Pope and Lucero, 2014). With time, more repositories are expected to spring up, since the level of research from online sources is on the increase, more scholarly output is expected on already existing digital repositories.

CHAPTER THREE

SYSTEM ANALYSIS AND DESIGN

3.1 Analysis of the current System

Auchi Polytechnic currently archives physical copies of student projects with each departmental secretary, with a comprehensive list matching each student name with the topic her/she worked on and the year the project was carried on. All these metadata are recorded and kept on paper, this makes it a bit time consuming when trying to locate a particular record from the list of already written projects, and these records are also vulnerable to getting damaged by rodents or natural causes. In general, the process of archiving project works of students graduating from computer science is done manually.

3.2 Problems of the existing System

The current system of storing projects is faced with several challenges, the following are some of the challenges:

a) Retrieval of known/stored records: Retrieving passed records are time consuming and harder to locate because of the human effort applied.

b) Loss of records: Already recorded and stored records can get lost, because the records are mobile, so in moving them from one location to another, pieces of information can get lost.

c) Ease of access: Because these records are recorded on paper only and kept in a particular location, it is not easily accessible to anybody at any time, even when only menial metadata is needed form a material, it cannot be made available unless if that material is requested for by means of a formal letter and signed by signatories in higher offices, all these processes can be time consuming and ineffective.

d) Vulnerable to natural disaster: In cases of rainfall intrusion or fire disasters, these records can be completely damaged and might be lost forever, if they can be regenerated, it will mean usage of more resources.

3.3 Analysis of the new System

The proposed department of computer science repository can be accessible online anywhere in the world, because it can be on the Auchi Polytechnic website. This is a big leap for the department and will go a long way in alleviating the problem of several formal processes needed before basic project information is gotten, it employs a robust search methodology to provide search results with speed and light weight data response. It has a straight, user-friendly and simple user interface to make its usability explanatory. It provides only basic metadata for each project work saved on it, this includes the project topic, year of submission, student name and the name of the supervisor. Fear of data loss is very minimal because all information in the repository is going to be hosted online. Also, archiving of new project works on the system is quite convenient an easy compared to the existing manual process.

3.4 Methodology

The proposed system uses a Model, View, and Controller (MVC) approach shown in Figure 3.1 which is in a top-bottom design. A breakdown of the system from the topmost layers to other sub-layers is shown to help show insight into the compositional sub-layers (modules or sub-systems). First level modules are only specified but without much detailing. The top-down approach starts with the big picture and then breaks it down into smaller segments. Top-down approaches usually emphasize planning and good understanding of the system, it is inherent that no coding can begin until a sufficient level of detail has been reached in the design of at least some part of the system.

The proposed framework (system) is a web-based client and server architecture in which the client interface, Personal Computer (PC) information stockpiling, and information access are created. The proposed framework's database is actualized utilizing XAMPP server, XAMPP is an acronym, and the beginning "X" remains for cross-platform similarity, which means it can be utilized on every working framework. The accompanying "AMPP" remains for "Apache, MySQL and PHP/PERL/PYTHON" – this obviously demonstrates XAMPP joins Apache and MySQL.

Apache is server software, it operates on a local machine or network and offers same services as a normal web hosting server offers. Apache incorporates phpMyAdmin which is a sub-program that gives MySQL database a slick and easy user interface to carry out database operations without even writing a single line of SQL code.

MySQL as a Relational Database System (RDS) uses Structured Query Language (SQL) to accept, process and output results from databases and tables. It has security measures, such as accepting encrypted or hashed access passwords to restrict unauthorized access to a database or a table record. It is an open source and free database framework which implies that anybody can utilize it at freedom and can change its code to suit your taste. Besides, at development time, developers may need to process records either by embedding, upgrading, recovering and erasing records at the server without the need to utilize another programming dialect, i.e. by method for implicit usefulness of the social database. Always remembering the utilization of triggers to perform activities on information upon insertion, erasure or overhauling. The aforementioned element makes MYSQL a decent situation to have the framework database.

The information and useful necessity for the web-based SICT repository application is object oriented. In utilizing this methodology, the elements that are recorded on the project

table (Table 3.2), spoke to as objects are stored in a database. The attributes of every item are characterized as far as the information component to be stored.

As prior said, the procedure retained for this framework is the MVC Model in Figure 3.1 which executes a top-down configuration appeared in Figure 3.2. The proposed framework was outlined utilizing a top-down methodology which is the cardinal point in the improvement of the SICT repository. The entire framework was outlined, utilizing a secluded programming framework where the entire system was separated into sub-modules. This technique for framework advancement is to build clarity and effortlessness of the web application and for simple code control (code reuse and debugging) and future updates, it also makes the development less tedious thereby giving room for agile development, quick testing and deployment. The user interface design also becomes easier to create and integrate since the entire application is in modules and sub-modules, therefore, simpler interfaces can be made to enable stress-free interaction between users and the SICT repository application.

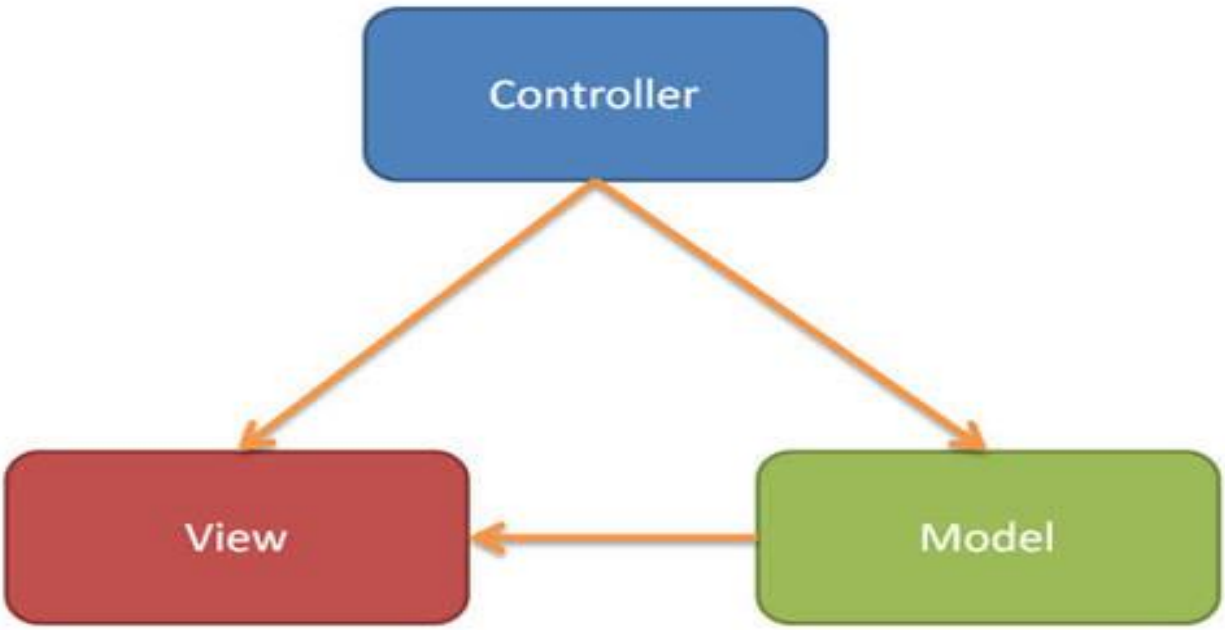

Figure 3.1 MVC Model

In Figure 3.1, the basic communication between the three components in the MVC model is shown, the View sends a request to the controller, if the request does not involve querying a database, the controller processes it and immediately returns a result, but if the request involves contacting a database, the Controller passes the request to the Model to query the database and then return the result to the View or update the View. The “View” the author is referring to is the visible interface a user can operate to be able to use the repository application, in this case, since the proposed system is web based, the user interface will be a web browser such as Mozilla Firefox, Google Chrome, Opera, Opera Mobile, Thunderbird, Internet Explorer among others. Figure 3.2 shows how this process works.

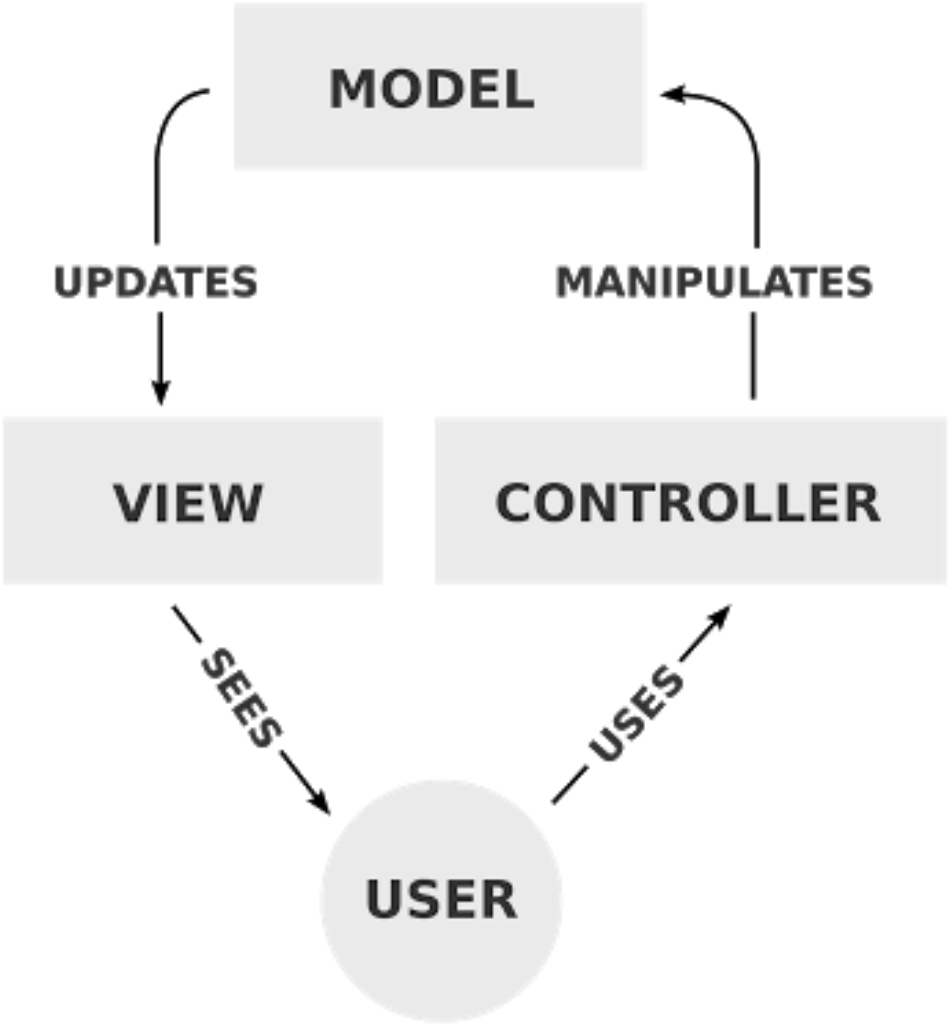

Figure 3.2 User request flow in MVC model

In Figure 3.2, a new entity “USER” has been added to the MVC model, this USER entity represent any public user that is going to be requesting or contacting the proposed repository application for some data. Figure 3.3 shows how this the MVC model handles a user’s request from a browser and how information is returned to the user, this is shown in a step by step diagrammatic form.

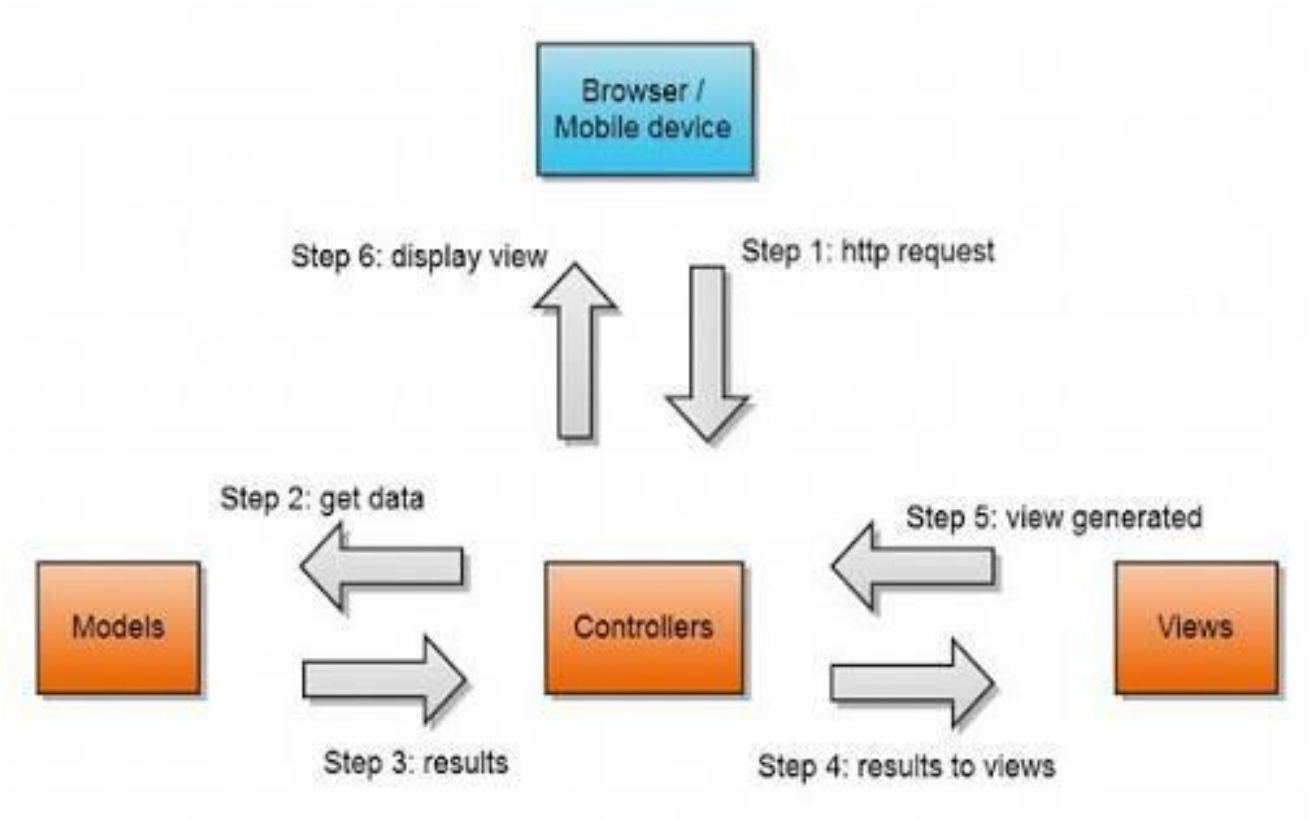

Figure 3.3 Step-by-step user request flow on application built with MVC model

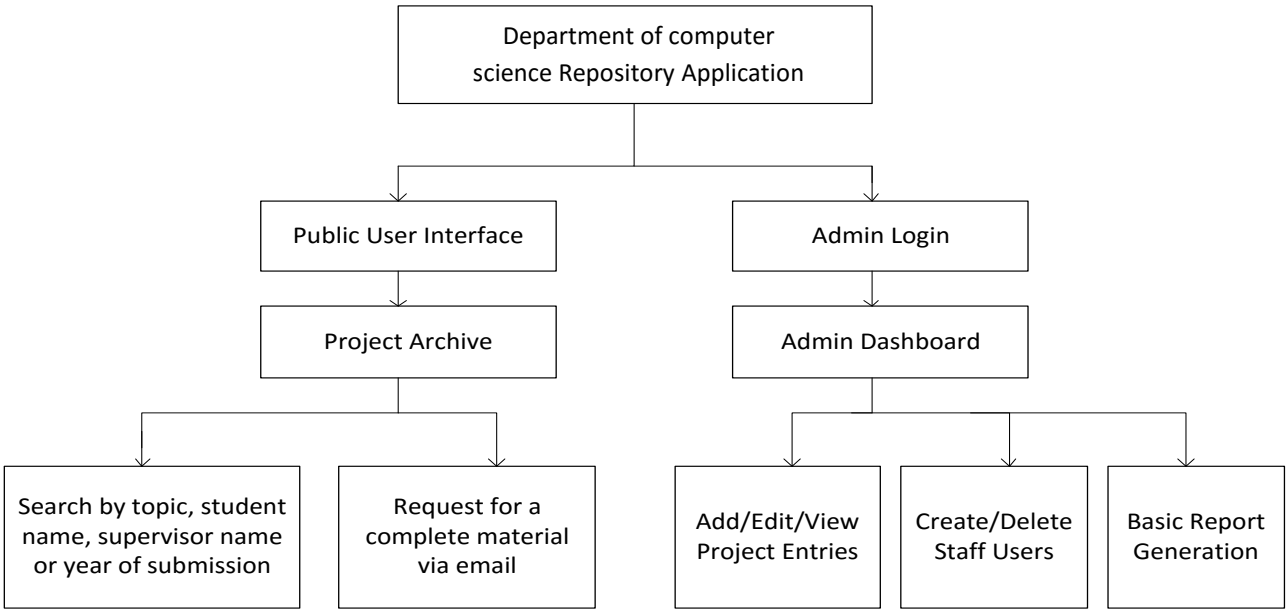

Figure 3.4 Top-down design of the proposed Department of computer science repository application

3.5 Data Collection

The method of data collection was through the secretaries of the department and also the Head of Department (HOD) of Computer Science. The aim was to gather all past computer science projects in digital copies so as to build the new database that will support the proposed repository web application.

3.6 Database Design

The web application is designed to utilize MySQL as the database motor. The name, structure and representation of the database are joined in the application. Table 3.1 is the user or staff data table of the proposed framework.

Table 3.1 User/Staff Information table

S/NO	FIELD NAME	DATA TYPE	DATA SIZE
1	Id	Integer	11
2	username	Text	50
3	Fullname	Text	100
4	Department	Text	100
5	user_level	Integer	5
6	visible	Tiny integer	1
7	Password	Text	255
8	remember_token	Text	255
9	created_at	Timestamp	
10	updated_at	Timestamp	

Table 3.2 is the departments table. It contains information on the computer science departments, this includes only the name, slug, and whether the department should be visible on the application or not.

Table 3.2 Departments Table

S/NO	FIELD NAME	DATA TYPE	DATA SIZE
1	Id	Integer	11
2	name	Text	50
3	Slug	Text	100
4	visible	Tiny integer	1
5	created_at	Timestamp	
6	updated_at	Timestamp	

Table 3.3 is the project's table, it contains information that describes each project and categorizes the project under a department, it contains only the project topic, department id, project number, slug, year of submission, student name, supervisor name, body (abstract), methodology, references and visibility on the application.

Table 3.3 Projects table

S/NO	FIELD NAME	DATA TYPE	DATA SIZE
1	Id	Integer	11
2	department_id	Integer	11
3	project_number	Text	20
4	Slug	Text	255
5	year_of_submission	Year	4
6	student_name	Text	100
7	surpervisor_name	Text	100
8	Topic	Text	255
9	Body	Text	
10	Methodology	Text	255
11	References	Text	
12	visible	Tiny integer	1
13	Password	Text	255
14	remember_token	Text	255
15	created_at	Timestamp	
16	updated_at	Timestamp	

3.7 Menu Design

The menu of the proposed application has three top main links that are public, the "Home" link links back to the starting page from any point in the application, the "Departments" link has a dropdown list of departments in the school, then the "Contact" link routes to the contact page which contains relevant contact details and the mail address to contact if complete project work is needed. At the top-right corner, a "Staff Login" link is

situated, which routes to the login page for staff members. The admin menu has the “Add a project” link for adding new projects to the repository and a “View All Projects” links to show all the projects in the repository in a paginated form, when these projects are displayed in a tabular format, the project topics are links themselves in the administrative dashboard which route to the edit section of the project when clicked.

3.8 Query Design

The proposed repository application is designed in such a way that only a project topic can be queried or a project topic and the student author name, or with the supervisor name or even with the year the project was submitted to the department. All these queries can be performed individually or collectively as one query to get a very refined result. Figure 3.5 shows the use cases users are granted on the proposed system.

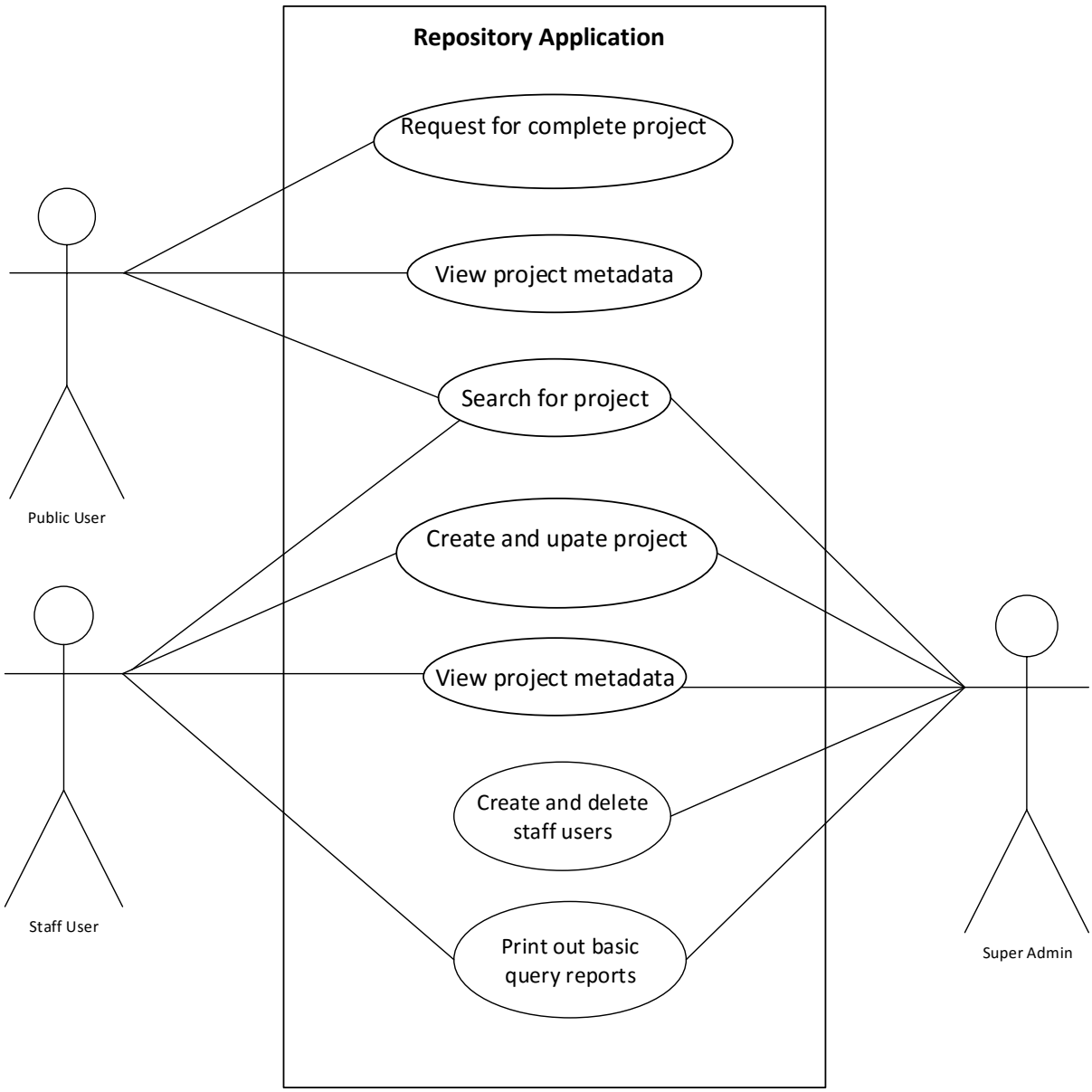

Figure 3.5 Use Case diagram for the proposed system

CHAPTER FOUR

SYSTEM IMPLEMENTATION, TESTING AND INTEGRATION

4.1 Choice of Programming Language

Hypertext Preprocessor (PHP), and MySQL was the programming language decided for the framework of the proposed repository web application and the device utilized for the advancement of the framework is Sublime Text 3, Paint and XAMPP.

PHP (Version 5.6.8) as a server side scripting language is utilized for web improvement. The codes are prepared by a web server with a PHP processor module which makes the normal website page result. Its code can be composed independently or implanted inside of a HTML code to make the site page or site dynamic. The PHP framework utilized for the proposed repository web application is Laravel; it is a MVC PHP framework that is absolutely Object Oriented and supports new and strong PHP programming structures. Laravel helps the development process with less codes however more proficiency. It is exceptionally dependable as a result of its substantial designer group and prestigious organizations that support its redesigns.

MySQL (Version 5.6.12) is an open source Relational Database Management System (RDMS). It depends on the Structured Query Language (SQL) which is utilized for expanding, erasing and redesigning data in a database. It contains connection, variable based math, social analytics, Data Definition Language (DDL) and Data Manipulation Language (DML). The dialect helps a framework manager to oversee information put away in a database.

Sublime Text 3 is a web improvement instrument that gives a friendly code interface with user defined custom colours, it has a project explorer section by the left that displays the current project being worked on in a tree format, indicating the respective depths of

directories in each folder. It has a zoom and scroll page section by the right side of the editor, that enables fast and easy scrolling of the current page that is open, a search bar is located at the bottom section which performs search operations on each key stroke and highlights search results. Sublime Text 3 is very light in size and memory usage and is tremendously fast, this is why it was used for this project to aid speed and manage memory and resources.

The acronym XAMPP refers to an arrangement of free applications which are ordinarily utilized as a part of a web server environment. It is a web advancement tool that permits a software engineer to create element website pages with Apache Server, PHP, an element Scripting Language and a MYSQL database and it additionally contains phpMyAdmin which deals with a database all the more effortlessly. It serves as a logged off (offline) database server for site pages; site pages are seen on a web program like there is a web association even. The letter "X" in the acronym remains for cross-stage similarity, which means it can be utilized on a few working frameworks. The accompanying "AMPP" remains for "Apache, MySQL and PHP/PERL/PYTHON" – this plainly demonstrates XAMPP joins Apache, MySQL and PHP/PERL/PYTHON.

4.2 The System Main Menu Implementation

Immediately the web application is accessed from a browser, the home page comes up, showing a top main navigation, a slide of auchi polytechnic pictures and a welcome note at the lower section of the page, the home page also carries a “Staff Login” link situated at the top-right hand corner of the page

However, the repository application is in a modular form, the main application incorporates other sub-applications (modules) that can be accessed, the main application has a staff login page. On the Staff Login page, a username and password is requested, when a valid staff username and password is given, the application gives the user (staff) access to a sub-application section of the repository. Only the Administrator (Super Admin) can view,

delete and create new staff users, the Super Admin has all priviledges while other staff users have most priviledges except for viewing, deleting and creating new users on the application.

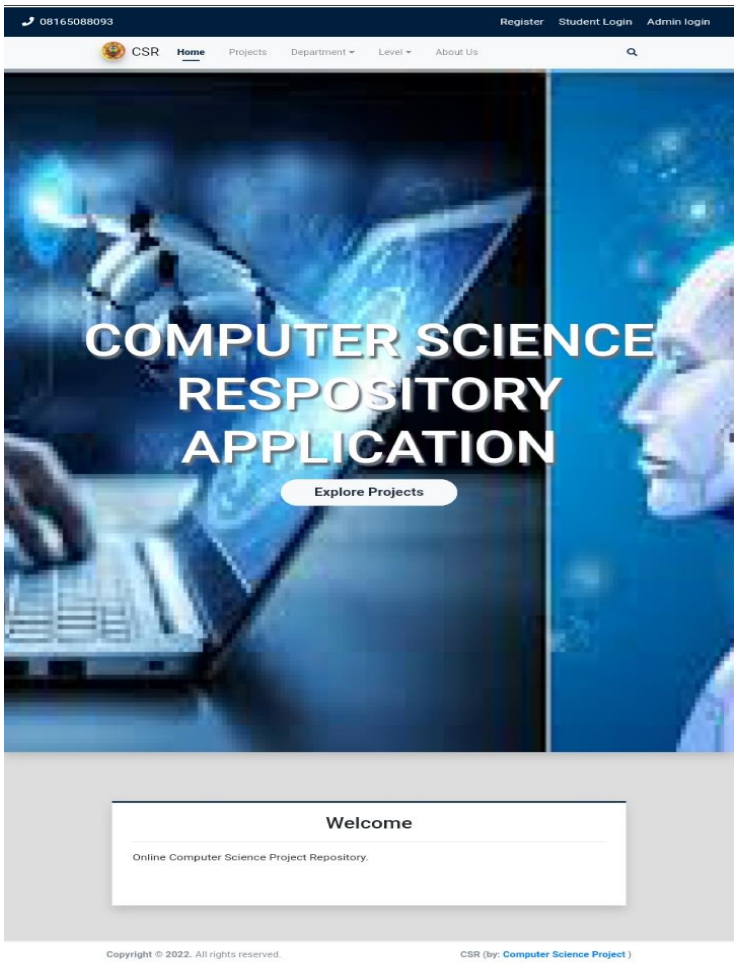

Figure 4.1 Main Menu

4.3 Staff Login Implementation

The staff login interface is designed to be straightforward and self-explanatory. Staff username and password is required before access is granted to a user. Security measures were taken to help secure the system, most noticeable among these measures is the Cross-Side-Request-Forgery (CSRF) offered by the framework used to build the application. With this functionality, third-party request cannot submit user credentials underground and gain access. Another security feature in place is the token sent with every login request, this token is refreshed on every request and computed using some hash function that is very difficult to

decrypt. Error handling for wrong user credentials or other forms request errors were properly handled and a readable message is always returned to the user interface. On provision of correct staff username and password, a user is redirected from the staff login page to the staff dashboard.

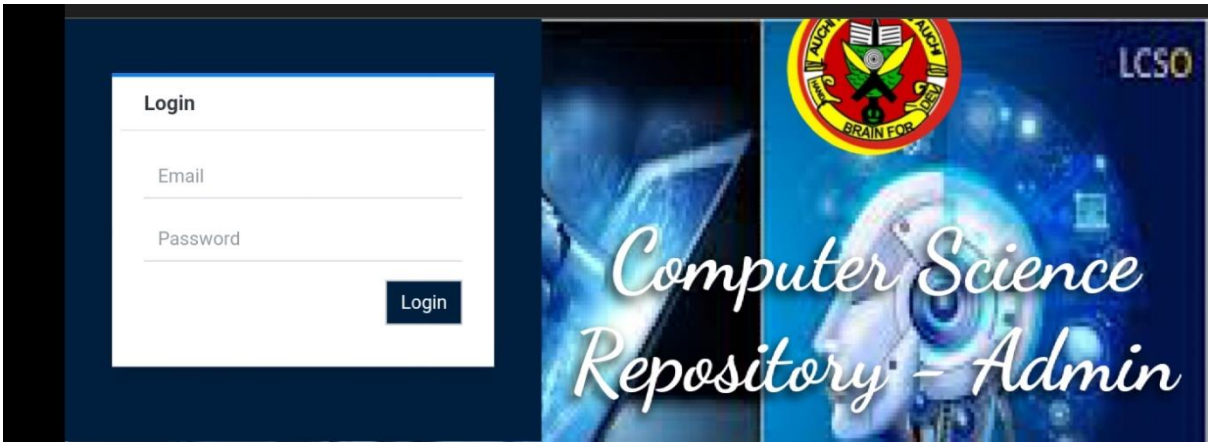

Figure 4.2 Staff Login Page

4.4 Implementation of the Sub-System

Clicking on the “Staff Login” link at top-right corner of the starting page displays the Staff Login interface, given that a credentials are inputted, access is then, which then points to the dashboard, where a menu is situated vertically at the left side of the dashboard page, from the menu, a staff can add a project or projects, the staff can then view all projects or update a project.

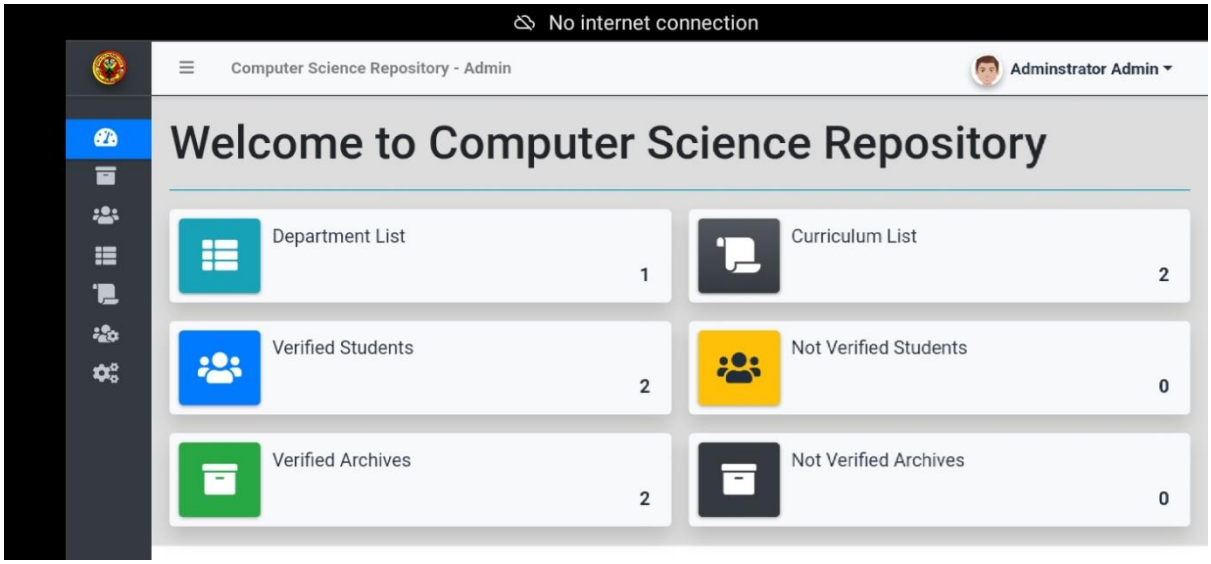

Figure 4.3 Staff Dashboard Interface

4.5 Project Creation

Creating a project simply means adding a new project to the repository. This process is quite simply as it is completed in one step. The project metadata are required to create a proper project entry into the repository. A staff user is expected to provide these metadata by inputting text the input and textboxes provided, after which the “Create Project” is clicked to create a new row for in the database and save the details provided by the staff user. The process of creating a project on the proposed system does not require any special or intensive training before a computer oriented person can use it. This makes the project creation process so easy and fast after a user goes through the process 3-5 times. Error handling for required fields and unwanted content is properly considered, error messages are in simple grammar and are of readable size for persons without any form of eye defect. After a successful project creation process, a success message is displayed at the top of the page, showing a confirmation message of the project being saved.

4.6 Query Sub-System Implementation

However, after a staff must have added projects to the repository, the need to query projects for the department, in a particular year or of a particular student comes to play, the query system is flexible enough to accommodate all the earlier stated forms of queries.

4.7 System Evaluation

The current system with the proposed (new) system were compared to show a clear and easy to note contrast of the two the two systems. Table 4.1 shows evaluations of the current system against the new system, from the results obtained, it can be said that the new system is a true improvement on the current system and gives more efficiency in storing and retrieving of undergraduate projects. The values used to evaluate the current system were obtained by intuition, therefore all calculations of the current system are close estimates.

Table 4.1 System comparison

Evaluated under	Current System	New System
i. Time taken to search for one undergraduate project (using 50 projects to evaluate)	Assuming checking one project's details take 5 seconds approximately. Time Taken: 5 * 50 = 250 seconds	Time taken to search one project is 0.0023 seconds. Time taken: 0.0023 * 50 = 0.115 seconds
ii. Water and Fire disaster	Some or all of the archived undergraduate projects will be damaged or totally lost.	Water and Fire cannot affect this system because it can be hosted online.
iii. Official Procedures	A formal is needed to be addressed to the Head of Department of a department before access is granted	No official procedure is needed, only a web accessing device with an active internet connection.

iv.	Time taken to archive one undergraduate project (using 50 projects to evaluate)	Assuming it takes 3 seconds to set one physical copy of a project on the archive shelf. Time taken: 3 * 50 = 150 seconds.	Time taken to add/create one project is 0.534 seconds. Time taken: 0.534 * 50 = 26.7 seconds.
v.	Time bound	Cannot be accessed anytime, complete undergraduate projects works given out have a time bound for return.	Can be accessed anytime when online. There is no time bound to when to return metadata for an undergraduate project work.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

The study was started with the sole point of adding to an online store that will chronicle undergraduate projects for computer science, Auchi Polytechnic, putting these instructive substances in a more available means for however many clients as could be allowed. On the other hand, it is likewise a successful method for protecting task records with different current web tools, in this manner making the procedure of getting to past projects much simpler.

The study started with an investigation of the current system taking note of slips in the manual system of archiving past undergraduate projects of the department and also providing student's and other people relevant information about project topics. Subsequently, based on the investigation made, the proposed system is designed and implemented to computerize and convert the manual process to digital (web based).

The task of developing a digital repository can be hectic and requires brainstorming to make it work efficiently. It was found that no online projects and repository had ever been used at computer science, Auchi Polytechnic. It was also noted that every project and material hosted on the repository were from the departments of computer science, Auchi Polytechnic.

The proposed system is able to allow staff users to add or create new project/entries into the repository. The proposed system provides a user-friendly interface where both public users and staff users can easily understand and manipulate. Users can access the application form anywhere, at any time as long as there is an active internet connection available, unlike

the current system where users have to go to the school building and follow due official processes before they can get access to a project or work.

It was found that searching for project or work on the proposed system was faster and easier to locate because of the processing power and speed of the web accessible devices, unlike the current system where human effort is used to locate a project or work.

5.2 Conclusion

The design of the proposed system was carried out, the design clearly stated the model used for the proposed system and the design approach implemented for the system.

The design of the proposed system was implemented using PHP and MySQL, the proposed system was tested for correctness and test results were a success.

An evaluation of the proposed system compared with the current was done and results showed that the proposed had a higher overall performance to the current system.

5.3 Recommendations

The system is better implemented with a server that supports PHP and MySQL. Computer science department repository is an important archiving tool which reduces the manual project archiving and retrieval load of the process. Therefore, is highly recommended that other faculties should adopt it.

5.4 Suggestions for Further Work

The proposed system is intended to facilitate the procedure of accessing computer science. Auchi polytechnic undergraduate project works and control of the application from the staff dashboard without taking special training for it. Should any adjustment or updating emerge, it ought to be finished with making it easy to use for staff clients and open clients, it ought to likewise be improved towards data sharing and document sharing.

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APPENDIX

ProjectsController.php

```
<?php
class ProjectsController extends \BaseController {
	public function index() {
		$projects = Project::OrderBy('id', 'desc')->with('department')->paginate(20);
		return View::make('admin.getProjectsAdmin', compact('projects'));
	}
	public function create() {
		$departments = Department::whereVisible(1)->get();
		return View::make('projects.create', compact('departments'));
	}
	// get project listing for a particular department
	public function getProjectsForDept($slug) {
		$department = Department::whereSlug($slug)->whereVisible(1)->first();
		$projects = Project::OrderBy('id', 'desc')->whereDepartmentId($department-
>id)->whereVisible(1)->paginate(20);
		return View::make('projects.getProjectsForDept', compact('department', 'projects'))->with('title',
ucwords($department->name));
	}
	public function store() {
		try{
			$validator = Validator::make(Input::all(),
		array(
		   'department' => 'required|Numeric',
		   'year_of_submission' => 'required|DateFormat:Y|Before:2016',
		   'student_name' => 'required|min:5|max:100',
		   'surpervisor_name' => 'required|min:5|max:100',
		   'topic' => 'required|min:5|max:250|unique:projects',
		   'body' => 'required|min:20',//|max:66000
		   'methodology' => 'min:5|max:250',
		   'references' => 'min:5|max:250'
		   )
		  );
		 if($validator->fails()) {
		   return Redirect::route('project.create')->withErrors($validator)->withInput()->withM('We encountered
some error(s) in the form');
		 }
				// create project number
				$project_number = 'pr'.str_random(12);
				$slug = Str::slug(Input::get('topic'));

				$p = Project::create(array(
				'department_id' => Input::get('department'),
				'project_number' => $project_number,
				'slug'	=> $slug,
				'year_of_submission' => Input::get('year_of_submission'),
				'student_name' => Input::get('student_name'),
				'surpervisor_name' => Input::get('surpervisor_name'),
				'topic' => Input::get('topic'),
				'body' => Input::get('body'),
				'methodology' => Input::get('methodology'),
				'references' => Input::get('references'),
				'visible' => Input::get('visible')
				));
		   if($p) {
		   return Redirect::route('project.create')->withM('Project Created. We seem to be doing good today!')-
>withMType('success');

		   } else {
				return Redirect::back()->withInput()->withM('Could not create project');
		   }
		} catch(Exception $e) {
			return Redirect::back()->withInput()->withM('Exception: '.$e->getMessage());
		}
```

```
	}
	public function show($id) {
		$project = Project::with('department')->findOrFail($id);
		if(empty($project)) { return Redirect::back()->withM('Invalid Project Identity'); }
		//get related projects to current project object
		$rProjects = Project::OrderBy('id', 'desc')->whereDepartmentId($project->department->id)-
>whereVisible(1)->take(10)->get();
		return View::make('projects.getProjectItem', compact('project', 'rProjects'))
			->with('title', $project->title);
	}
	public function getSearch() {
		$department = Request::get('department');
		$topic = Request::get('topic');
		$year_of_submission = Request::get('year_of_submission');
		$student_name = Request::get('student_name');
		$surpervisor_name = Request::get('surpervisor_name');
		$sql = new Project();
		$sql = $sql->OrderBy('topic','asc')->with('department');
		if(strlen($department) > 1 && $department !== 0) { $sql->whereDepartmentId($department); }
		if(strlen($topic) > 1) { $sql->where('topic','LIKE',"%".$topic."%"); }
		if(strlen($year_of_submission) > 1) { $sql-
>OrWhere('year_of_submission','LIKE',"%$year_of_submission%"); }
		if(strlen($student_name) > 1) { $sql->OrWhere('student_name','LIKE',"%$student_name%"); }
		if(strlen($surpervisor_name) > 1) { $sql-
>OrWhere('surpervisor_name','LIKE',"%$surpervisor_name%"); }
		//return $sql->get(['topic']);
		return View::make('projects.searchDefault',
compact('topic','year_of_submission','student_name','surpervisor_name'))->with('searchResults', $sql->paginate(20));
	}
}
?>
```

routes.php

```
<?php
# CSRF Protection
Route::when('*', 'csrf', ['POST', 'PUT', 'PATCH', 'DELETE']);
Route::get('/sictrepository', 'HomeController@home');
// search projects on sictrepo route
Route::get('/search-results', array('uses' => 'ProjectsController@getSearch', 'as' => 'getSearch'));
Route::group(array('before' => 'guest'), function() {
	Route::post('/staff-login', array('uses' => 'HomeController@postLogin', 'as' => 'postLogin'));
	// admin login
	Route::get('/staff-login', array('uses' => 'HomeController@getLogin', 'as' => 'getLogin'));
}); //end protected routes for unauthenticated routes
Route::get('/logoutAdmin', array('uses' => 'HomeController@getLogout', 'as' => 'getLogout'));
Route::get('/', array('uses' => 'HomeController@home', 'as' => 'home'));
Route::get('/about', array('uses' => 'HomeController@about', 'as' => 'getAbout'));
Route::get('/contact-us', array('uses' => 'HomeController@contact', 'as' => 'getContact'));
Route::get('/terms', array('uses' => 'HomeController@terms', 'as' => 'getTerms'));
Route::get('/request-project', array('uses' => 'HomeController@customProject', 'as' => 'getCustomProject'));
Route::get('/browse-all-projects', array('uses' => 'ProjectsController@browseProjects', 'as' => 'getBrowseProjects'));
// start protected routes
Route::group(array('before' => 'auth'), function() {
		Route::resource('/project', 'ProjectsController', ['only' => ['index','store', 'create', 'edit', 'update',
'destroy']]);
		Route::post('/edit-project/{projectNumber}', array('uses' => 'ProjectsController@update', 'as' =>
'admin.postEditProject'));
	Route::get('/edit-project/{projectNumber}', array('uses' => 'ProjectsController@getEdit', 'as' => 'getEditProject'));
	Route::get('/dashboardAdmin', array('uses' => 'HomeController@getDashboard', 'as' => 'getDashboard'));
	Route::get('/dashboardAdmin/browse-projects/{projectNumber}', array('uses' =>
'ProjectsController@getProjectItemAdmin', 'as' => 'admin.getProjectItemAdmin'));
});
Route::get('/{slug}', array('uses' => 'ProjectsController@getProjectsForDept', 'as' => 'getProjectsForDept'));
Route::get('project/{id}', array('uses' => 'ProjectsController@show', 'as' => 'project.show'));
?>
```